

of such dislocations traversing eastern North America from Alabama to Canada." These have doubtless caused considerable vertical displacements, both of elevation and depression, but the present physical condition of the rocks of the south-eastern area is not due to these dislocations, but to the great lateral pressure, which must have preceded, accompanied and caused them.

Along the whole line of this great break from Lake Champlain to Gaspé, the newer formations apparently underlie the older, as on the Island of Orleans, but it is not always clear whether this is due to a series of more or less parallel and branching faults, or to a close and repeated folding of the strata in overturned synclinal and anticlinal forms. Probably both causes have contributed to produce the result referred to.

Between Montmorenci falls and the south side of West Point, on the Island of Orleans, there are three distinct and well exposed faults. The diagram opposite, Fig. 1, shews the supposed structure, the distance is three miles.

There is really no conclusive evidence to show on which side of these faults the movement has taken place. No. 1 is probably a down throw to the south-east, while Nos. 2 and 3 are up throws on the same side. No. 2 is the main fracture, while Nos. 1 and 3 are branches from it.

To the north-east of the Island of Orleans these faults apparently pass beneath the waters of the St. Lawrence. In their eastern prolongation they curve in conformity with the outline of the north shore and pass south of Anticosti Island, where the strata of the Cambro-Silurian and Silurian are wholly undisturbed and conformable, and dip at a low angle towards the fault, while on the opposite shore of the Gaspé Peninsula we find the same formations folded and faulted, and, as at the Island of Orleans, apparently dipping beneath the older Levis formation or upper Cambrian of the Quebec group. Of these rocks Sir W. E. Logan thus writes in his report dated 1st May, 1845 : "The cliff exposing them is bold and lofty, but the strata are most violently twisted and broken; the greatest confusion prevails, and it is difficult to follow any individual bed for fifty yards, numerous cracks result from the disturbances," and again, "The coast from the Abour to the Magdalen—about 30 miles—exhibits numerous instances of contorted strata, and at the mouth of the chief valleys which terminate in deep bays upon the St. Lawrence, there are displayed several transverse sections in the sides of the mountains, which come close upon the shore and slope up to 800 and 1,000 feet. One of these instances is seen on the east side of the River Pierre, where the summit of the hill shews an overturn dip and the strata in the whole section appear to be arranged in the form of a very flat ∞ ." *

* Report of Progress, Geological Survey of Canada, 1844, p. 23.